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09/856,022	05/16/2001	Guy Barre	TS 5549 US	2253

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[REDACTED] EXAMINER

NORTON, NADINE GEORGIANNA

ART UNIT	PAPER NUMBER
1764	5

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/856,022	BARRE ET AL.
	Examiner Nadine Norton	Art Unit 1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 16 May 2001.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-16 is/are rejected.

7) Claim(s) 7 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1.) Certified copies of the priority documents have been received.

2.) Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> .	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### *Claim Objections*

Claim 7 is objected to because of the following informalities: In claim 7, it appears as if “crystallites is” should be changed to “crystallites are”. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abdo et al.(4,867,861).

Applicants' are claiming several processes involving the catalytic dewaxing of a sulfur containing hydrocarbon oil feed by contacting it with a catalyst composition comprising a Group VIII metal hydrogenation component, a dealuminated aluminosilicate zeolite crystallite, and a low activity refractory oxide binder which is essentially free of alumina. The dependent claims contain limitations directed at additional process steps, feed contents and catalyst components.

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The reference of Abdo et al.(4,867,861) discloses a dewaxing process for a waxy oil feed in the form of a shale oil containing organosulfur and organonitrogen contaminants. See column 1, lines 10-20. The process is suitable for producing a lube base stock. See column 2, lines 50-60. The feed can be subjected to hydrotreating before dewaxing. See column 3, line 65 through column 4, line 35. The process involves contacting the feed with a catalyst containing ZSM-5 (the structure of ZSM-5 is an MFI-type structure), Group VIII metal such as nickel, platinum or palladium, and an inorganic refractory oxide such as silica. See column 10, lines 16-25 and 60-65, and column 11, lines 35-45. The reference also discloses the presence of dealuminated zeolites wherein the dealumination is accomplished with ammonium hexafluorosilicate . See column 9, lines 15-20. Abdo et al.(4,867,861) also teaches that a hydrotreating step may follow dewaxing. See column 8, lines 27-30.

The reference of Abdo et al.(4,867,861) succeeds at disclosing a dewaxing process employing a catalyst with components corresponding to applicants' claimed group VIII metal, dealuminated zeolite (by means of fluorosilicate salt), and MFI-type zeolite in the form of ZSM-5. In addition, the disclosure of a ZSM-5 structure meets applicants' constraint index limitations.

Several differences are noted between the reference of Abdo et al.(4,867,861) and applicants' claimed invention. The reference is silent about the specific amounts of sulfur and nitrogen in the feed. In addition, Abdo et al.(4,867,861) is silent about retrofitting a lube base stock process by replacing an existing solvent dewaxing step with a catalytic dewaxing step as defined in applicants' claim 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to treat a feed with applicants' specific amounts of sulfur and nitrogen according to the

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process of Abdo et al.(4,867,861) because shale oil feeds are known to contain appreciable amounts of sulfur and/or nitrogen.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace an existing solvent dewaxing step in a lube base oil production process with a catalytic dewaxing step as defined in applicants' claim 1 because both steps (e.g. catalytic and solvent dewaxing) are known to be effective for producing a lube base stock.

***Claim Rejections - 35 USC § 103***

Claims 1-9, 12-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forbus, Jr. et al.(6,287,454) in view of Bowes et al.(5,080,878).

The reference of Forbus, Jr. et al.(6,287,454) discloses a process for the production of a lubricating oil. See column 4, lines 25-37. Suitable feedstocks include crudes, tar sands and shale oils. See column 4, lines 60-65. The process involves contacting a feedstock with a catalyst containing a ZSM-5 component (ZSM-5 has a MFI structure). See column 5, lines 29-34. The disclosed catalyst also contains a group VIII metal (nickel) and a matrix such as silica. See column 5, lines 63-66 and column 7, lines 5-12. The initial feed can be subjected to an initial solvent dewaxing or hydrotreating step before dewaxing. See column 5, lines 26-34. The final product can be subjected to a post-dewaxing hydrotreating step. See column 6, lines 46-52.

The reference of Forbus, Jr. et al.(6,287,454) succeeds at disclosing a dewaxing process employing a catalyst with components corresponding to those claimed by applicants. In addition, the disclosure of a ZSM-5 structure meets applicants' constraint index limitations.

Several differences are noted between the reference of Forbus, Jr. et al.(6,287,454) and applicants' claimed invention. The reference of Forbes, Jr. et al.(6,287,454) does not disclose the dealumination of an aluminosilicate or dealumination with a fluorosilicate salt. In addition, the reference of Forbus, Jr. et al.(6,287,454) is silent about the specific amounts of sulfur and nitrogen in the feed. Also, Forbus, Jr. et al.(6,287,454) is silent about retrofitting a lube base stock process by replacing an existing solvent dewaxing step with a catalytic dewaxing step as defined in applicants' claim 1.

The reference of Bowes et al.(5,080,878) discloses a dealuminating process for treating a crystalline aluminosilicate such as a ZSM-5 composition which is employed to prepare a lube product. See column 3, lines 22-35 and column 7, lines 30-40. The dealumination step involves contacting a fluorosilicate salt with an aluminosilicate to extract aluminum. See column 10, lines 15-60. The fluorosilicate treated zeolite is desirable because the final product has a structure which lessens the occurrences of undesirable side reactions which result in lower product yield and inferior product characteristics. See column 3, lines 42-48.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the aluminosilicate (ZSM-5) employed in the Forbus, Jr. et al.(6,287,454) process by subjecting it to a dealuminating step with a fluorosilicate salt because the reference of Bowes et al.(5,080,878) teaches that zeolites dealuminated with fluorosilicate salts are desirable since they display a structure which lessens the occurrences of undesirable side reactions that result in lower product yield and inferior product characteristics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to treat a feed with applicants' specific amounts of sulfur and nitrogen according to the

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process of Forbus, Jr. et al.(6,287,454) because crudes, tar sands, and shale oils are known to contain appreciable amounts of sulfur and/or nitrogen.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace an existing solvent dewaxing step in a lube base oil production process with a catalytic dewaxing step as defined in applicants' claim 1 because both steps (e.g. catalytic and solvent dewaxing) are known to be effective for producing a lube base stock.

***Claim Rejections - 35 USC § 103***

Claims 1-11, 13-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor, Jr. et al.(5,332,490) in view of Bowes et al.(5,080,878).

The reference of Taylor, Jr. et al.(5,332,490) discloses a process for hydrodewaxing a feedstock such as a gas oil or solvent extracted feedstock. See column 4, lines 29-34. The process involves contacting the feed with a catalyst containing ZSM-5 (aluminosilicate with MFI-type structure), a group VIII metal (nickel), and silica or silica-zirconia (refractory oxide). See column 5, lines 20-25 and 53-55, and column 6, lines 1-4 and 29. The disclosed process can be used to produce lube oil. See column 3, lines 46-49.

The reference of Taylor, Jr. et al.(5,332,490) succeeds at disclosing a dewaxing process employing a catalyst with components corresponding to applicants' aluminosilicate, Group VIII metal, and refractory oxide components. In addition, the disclosure of a ZSM-5 structure meets applicants' constraint index limitations.

Several differences are noted between the reference of Taylor, Jr. et al.(5,332,490) and applicants' claimed invention. The reference is silent about treating the ZSM-5 aluminosilicate

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component. In addition, the reference is silent about the amount of sulfur or nitrogen in the feed. Also, Taylor, Jr. et al.(5,332,490) is silent about retrofitting a lube base stock process by replacing an existing solvent dewaxing step with a catalytic dewaxing step as defined in applicants' claim 1.

The reference of Bowes et al.(5,080,878) discloses a dealuminating process for treating a crystalline aluminosilicate such as a ZSM-5 composition which is employed to prepare a lube product. See column 3, lines 22-35 and column 7, lines 30-40. The dealumination step involves contacting a fluorosilicate salt with an aluminosilicate to extract aluminum. See column 10, lines 15-60. The fluorosilicate treated zeolite is desirable because the final product has a structure which lessens the occurrences of undesirable side reactions which result in lower product yield and inferior product characteristics. See column 3, lines 42-48.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the aluminosilicate (ZSM-5) employed in the Taylor, Jr. et al.(5,332,490) process by subjecting it to a dealuminating step with a fluorosilicate salt because the reference of Bowes et al.(5,080,878) teaches that zeolites dealuminated with fluorosilicate salts are desirable since they display a structure which lessens the occurrences of undesirable side reactions that result in lower product yield and inferior product characteristics.

In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to treat a feed with applicants' specific amounts of sulfur and nitrogen according to the process of Taylor, Jr. et al.(5,332,490) because the feeds of Taylor, Jr. et al.(5,332,490) at column 4, lines 25-35 are known to contain appreciable amounts of sulfur and/or nitrogen.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace an existing solvent dewaxing step in a lube base oil production process with a catalytic dewaxing step as defined in applicants' claim 1 because both steps (e.g. catalytic and solvent dewaxing) are known to be effective for producing a lube base stock.

***Prior Art of Record***

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadine Norton whose telephone number is 703-305-2667. The examiner can normally be reached on Monday through Thursday from 8:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Calderola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

N.N.  
April 14, 2003

NADINE G. NORTON  
PRIMARY EXAMINER  
*Nadine Norton*